Memorandum

MIAMI-DADE COUNTY

Date: May 9, 2006

Agenda Item No. 12(B)4

To: Honorable Chairman Joe A. Martinez
and Members, Board of County Commissioners

From: George M. Burgess
County Manager

Subject: Status Report on Implementation of Sustainable Development Building Measures

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On October 18, 2005, the Board approved Resolution R-1200-05, sponsored by Commissioner Katy Sorenson, which declared sustainable building as a policy of Miami-Dade County and directed the County Manager to prepare an implementation plan. Since that time, staff has reviewed a variety of programs currently in place or under implementation by other jurisdictions. This report is the culmination of that research, and is intended to provide you with a brief overview of the rationale and framework for moving us forward on this important initiative.

WHAT IS A "GREEN" BUILDING?

Commonly referred to as "green," a sustainable building is a structure that is designed, built, renovated, operated, or reused in an ecological and resource-efficient manner, one that will not affect the ability of future generations to meet their needs. The goal is to achieve the highest environmental performance at the least possible cost.

IMPACT OF SUSTAINABLE BUILDING

It is difficult to understate the positive impact of sustainable development, if implemented on a broad scale. According to the environmental research organization Worldwatch Institute, buildings consume or are responsible for 40% of the world's total energy use, 30% of raw materials consumption, 25% of timber harvest, 35% of the world's CO2 emissions, 16% of fresh water withdrawal, 40% of municipal solid waste destined for local landfills, and 50% of ozone-depleting CFCs still in use. Structures also affect watersheds, habitat, air quality, and community transportation patterns.

Not only can a sustainable building policy have a positive effect on the environment, it makes financial sense as well:

- According to a comprehensive report prepared in October 2003 for the State of California's Sustainable Building Task Force, upfront construction costs for sustainable development run about 2% over conventional methods, but will result in cost savings of about 20% in operating and maintenance costs over the life of the building. For example, an initial investment of $100,000 to incorporate green building features into a $5 million project would result in a savings of at least $1 million over the life of the building, a tenfold return on investment.
- Evidence supports that green cost premiums may be higher at the outset of a green building initiative, but will decline over time. As an example, Seattle saw the cost premiums on its sustainable buildings drop from 3 – 4% at the outset to 1 – 2% in recent years.

- A detailed study of 60 LEED (Leadership in Energy and Environmental Design) buildings across the country concluded that, when compared to conventional buildings, green buildings are 25 to 30% more energy efficient, have electricity peak demands 25 to 30% lower, and are more likely to generate renewable energy on-site.
- There are tangible and compelling benefits beyond the obvious ones of long-term operating cost savings and reduced consumption of limited energy resources. For example, a study by the American Medical Association and the US Army found that indoor air quality problems result in 150 million lost workdays and about $15 billion in productivity losses each year. In addition, sustainable buildings have been shown to provide 5% to 7% increases in worker productivity and performance, and up to a 40 percent decrease in absenteeism.

LEED GREEN BUILDING RATING SYSTEM®

I have attached a listing (Exhibit A) of some of the sustainable development programs that have been reviewed by staff. Although the programs vary in size and scope, the one common thread connecting all of them is their choice to base their programs upon the nationally recognized LEED standards (Exhibit B), as developed and administered by the USGBC (U.S. Green Building Council). This seems a prudent choice. The USGBC is the preeminent sustainable development organization in this country, and employing a national standard simplifies the creation of minimum performance levels, and would enable us to measure our sustainable building performance to that of other jurisdictions using LEED.

The LEED Green Building Rating System® is a self-certifying system designed for rating new and existing buildings through evaluation of environmental performance from a "whole building" perspective. Launched in 1998 at the USGBC Membership Summit, LEED was the result of a five-year effort by industry professionals, and has since evolved into a comprehensive system that offers project certification, professional accreditation, training and practical resources for assessing building performance and meeting sustainability goals. Voluntary and consensus-based, LEED promotes well-founded scientific standards and state-of-the-art strategies, recognizes industry achievements, and promotes expertise in green building.

The LEED rating system is divided into six categories. There are prerequisites within each of these categories that must be met for a building to be certified as a LEED building. The rest of the green measures are an "a la carte" system of points, awarded for using both proven practices and emerging technologies. Depending on the total number of points achieved, a building is classified as either Certified, Silver, Gold or Platinum. LEED categories and some examples of green building practices include:

Sustainable Sites – Erosion and sedimentation control, site selection, urban redevelopment, public and alternative transportation access, reduced site disturbance and stormwater management

Water Efficiency – Water efficient landscaping, water use reduction and innovative wastewater technologies

Energy & Atmosphere – Storage and collection of recyclables, fundamental building systems commissioning, minimum energy performance, CFC reduction in HVAC&R equipment, optimize energy performance, renewable energy, ozone depletion, measurement and verification, green power

Materials & Resources – Storage and collection of recyclables, building reuse, construction waste management, resource reuse, recycled content, local/regional materials, rapidly renewable materials and certified wood

Indoor Environmental Quality – Minimum indoor air quality performance, CO2 monitoring, ventilation effectivements, low-emitting materials, indoor chemical & pollutant control, controllability of systems, thermal comfort, daylight and views

Innovation & Design Process – Innovation in Design and use of a LEED-accredited professional

SUSTAINABLE BUILDING PROGRAM DEVELOPMENT

Sustainable building programs are prevalent and well-established along the West Coast of the United States; they are relatively less common in other parts of the Country, and new to our region. Staff looked at a number of these established and budding programs in search of models that might provide guidance to our own efforts. Of particular interest was the process utilized to great success by the City of Chicago, which has emerged in a very short period as a leader in the development and implementation of Green Building practices. Their most recent success was the development of The Chicago Center for Green Technology as the first national LEED-Certified Platinum facility – the highest designation awarded – in only the third year of their program. Mirroring their methodology, staff has developed an action plan that we believe will ensure rapid implementation and overall success for the program.

Key components required for implementation include, but are not limited to:

- Recruitment and education of "green" vendors,
- Dialogue with, and input from, the industry,
- Staff training, and
- Creation of standard specifications to be included in all design and construction projects to which the ordinance applies, with selection and implementation of LEED strategies based on the ease of implementation and cost implications

NEXT STEPS

The immediate steps I am taking or recommending are as follows:

- I will present an ordinance for first reading at the May 23, 2006 Board Meeting, which will require that all projects initiated on January 1, 2007 or later comply with established County standards regarding sustainable buildings.
- The public hearing for the ordinance should be scheduled for Internal Management and Financial Resources Committee in October, which will allow time for staff to meet with the industry, and build consensus around the standards to be implemented.
- I will be creating a Sustainable Building Committee (SBC), comprised of representatives from Building Code Compliance, General Services Administration, Office of Capital Improvements, Department of Environmental Resources Management, Park and Recreation, Building, Procurement, Aviation, Fire Rescue, Water and Sewer, Solid Waste, Communications, Planning and Zoning and Public Works.
    - The Committee will be tasked with establishing the design and construction standards, creating an education/marketing plan, developing contract language, evaluating incentives.

- The Committee will host meetings and seminars with the architecture/engineering, interior design and construction industries to review the concepts and build consensus about the program.
- At a minimum, the following organizations will be invited to participate: the Florida Green Building Coalition, South Florida Builders Association, Latin Builders' Association, American Institute of Architects, US Green Building Council, University of Miami, Florida International University, Miami-Dade College, South Florida Water Management District, and FPL.
- The SBC's work will culminate in an Administrative Order outlining the program policy and responsibilities, which will be presented to the Internal Management and Financial Resources Committee in October along with the public hearing for the implementing ordinance.

Even prior to the formal implementation of a program, we have been and will continue to make efforts to implement sustainable development practices. For example, we committed at the outset of the project to design and construct the new Children's Courthouse so as to achieve LEED certification, which will make it the first County building to be so certified. Additionally, some County staff have already achieved LEED certification, while others are in the process of securing it.

We look forward to working with the Board and the industry to develop a plan that will provide the environmental, social and economic benefits that it has achieved in other areas of the Country.

Assistant County Manager

Ex

Several Sustainable Building Programs in United States

Location	State	Geo	Responsibility	Created	Implemented	Standards followed	Standard Level	Standard Categories	Required to Apply	Existing Buildings Requirement (size)	Incentive Program
Alameda County	CA	West Coast	Waste Management Authority and Source Reduction and Recycling Board			LEED	min: Certified or Silver	NC, EB	no	5,000	yes
Arlington	VA	East Coast	Environmental Services Department	1999	2000/2003	LEED	certified or contribution (silver is goal)	NC, EB	no	n/a	yes
Austin	TX	South	Sustainable Systems Rating Program	1980s	1993	Austin Sustainable Guidelines/ LEED	written documents by Austin		no	n/a	yes
Boulder	CO	Central	Office of Environmental Affairds			LEED	Silver	NC, EB	no	500	yes
Burbank	CA	West Coast	Community Development Department	2004	2004	Burbank/ LEED	has separate municipal code standards similar to LEED	NC, EB	no	5,000	yes
Dakota County	MN	Midwest	Capital Planning and Project Management Department	1999	2001	Dakota Design and Construction Standards	applicable codes, laws, and regulations with certain key elements	NC	no	n/a	no
King County	WA	West Coast	Green "Team"	2001 *executive order*	2005	LEED	highest possible	NC, EB	no	0+	
Marin County	CA	West Coast	Community Development Agency		2001	LEED	certified	NC	no	n/a	yes
New York	NY	East Coast	Office of Sustainable Design	1997	1999	NYC design/ LEED	NYC High Performance Building Guidelines	NC	no	n/a	yes

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Exhibit A

Location	State	Geo.	Responsibility	Created	Implemented	Standards Followed	Standard Level	Standard Categories	Required to Apply	Existing Building Requirements (size)	Incentive Program
Oakland	CA	West Coast	Public Works		2005	LEED	Min: Silver	NC, EB	yes	n/a	yes
Portland	WA	West Coast	Office of Sustainable Development	1999	1999	PDX LEED	meet requirements given	NC, EB	no	n/a	yes
San Francisco	CA	West Coast	Department of Environment	1997/1999 *ordinance*	2002	LEED	Silver	NC, EB	yes	5,000	
San Jose	CA	West Coast	Green Building Taskforce	1998 *recommendation*	2001	LEED/San Jose "LEED"	certified	NC, EB	yes	10,000	
San Mateo Co.	CA	West Coast	Green Building Committee (set up by CMO)	1999	2001	LEED	highest possible	NC, EB	yes	5,000	yes
Sarasota County	FL	South	Sustainable Sarasota Committee	2002 *policy*	2002	LEED	"green development standards"	NC	no	n/a	yes
Scottsdale	AZ	South West	Environment and Preservation Department	1998	2003	LEED	Gold	NC, EB	yes	5,000	yes
Seattle	WA	West Coast	Green Building Team	1999	2000	LEED	Silver	NC, EB	yes	5,000	yes

LEED-NC **Exhibit B**

LEED-NC Version 2.2 Registered Project Checklist

<< enter project name >>
<< enter city, state, other details >>

Yes	?	No			
			Sustainable Sites		14 Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
			Credit 1	**Site Selection**	1
			Credit 2	**Development Density & Community Connectivity**	1
			Credit 3	**Brownfield Redevelopment**	1
			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
			Credit 5.1	**Site Development**, Protect of Restore Habitat	1
			Credit 5.2	**Site Development**, Maximize Open Space	1
			Credit 6.1	**Stormwater Design**, Quantity Control	1
			Credit 6.2	**Stormwater Design**, Quality Control	1
			Credit 7.1	**Heat Island Effect**, Non-Roof	1
			Credit 7.2	**Heat Island Effect**, Roof	1
			Credit 8	**Light Pollution Reduction**	1
Yes	?	No			
			Water Efficiency		5 Points
			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
			Credit 2	**Innovative Wastewater Technologies**	1
			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
			Credit 3.2	**Water Use Reduction**, 30% Reduction	1
Yes	?	No			
			Energy & Atmosphere		17 Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
			Credit 1	**Optimize Energy Performance**	1 to 10
			Credit 2	**On-Site Renewable Energy**	1 to 3
			Credit 3	**Enhanced Commissioning**	1
			Credit 4	**Enhanced Refrigerant Management**	1
			Credit 5	**Measurement & Verification**	1
			Credit 6	**Green Power**	1

continued...

Yes ? No

Materials & Resources — 13 Points

Y	Prereq 1	**Storage & Collection of Recyclables**	Required
	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
	Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
	Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
	Credit 3.1	**Materials Reuse**, 5%	1
	Credit 3.2	**Materials Reuse**,10%	1
	Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
	Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
	Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regio	1
	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regio	1
	Credit 6	**Rapidly Renewable Materials**	1
	Credit 7	**Certified Wood**	1

Yes ? No

Indoor Environmental Quality — 15 Points

Y	Prereq 1	**Minimum IAQ Performance**	Required
Y	Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
	Credit 1	**Outdoor Air Delivery Monitoring**	1
	Credit 2	**Increased Ventilation**	1
	Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
	Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
	Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
	Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
	Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
	Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
	Credit 5	**Indoor Chemical & Pollutant Source Control**	1
	Credit 6.1	**Controllability of Systems**, Lighting	1
	Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
	Credit 7.1	**Thermal Comfort**, Design	1
	Credit 7.2	**Thermal Comfort**, Verification	1
	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes ? No

Innovation & Design Process — 5 Points

	Credit 1.1	**Innovation in Design**: Provide Specific Title	1
	Credit 1.2	**Innovation in Design**: Provide Specific Title	1
	Credit 1.3	**Innovation in Design**: Provide Specific Title	1
	Credit 1.4	**Innovation in Design**: Provide Specific Title	1
	Credit 2	**LEED® Accredited Professional**	1

Yes ? No

Project Totals (pre-certification estimates) — 69 Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points